Zhiyou Wang

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Objective: A researcher in molecular and computational biology.

Education

- **City University of New York**, New York, Ph.D. *of Biochemistry, May 2005 (expected)*
- **Queens College of CUNY**, New York, MS *of Computer Science, 2001*
- **City University of New York,** *MS of Biochemistry, 1999*
- **Beijing Institute of Technology,** *MS of Organic Chemistry, 1989, BS of Chemistry, 1986*

Research Experience

My Ph.D. study began and continued with the following rotation projects:

- The construction of plasmids containing OA-resistant, temperature sensitive or dominant-negative PP2A mutants with a His-tag or HA-tag.
- Antisense sequence-directed cross-linkage of mitomycin C to DNA oligonucleotides.
- 2D-NMR (COSY and NOESY) titration of bioactive agents to polypeptides.

After the rotation, I focused my doctorial thesis research on the pathology of Parkinson's disease, especially the relationship between inflammation and neurodegeneration. Investigated were two proteins, sequestosome-1 (p62) and UCH-L 1, which may play central roles in the biogenesis of ubiquitin-positive aggregates, based on my research:

- Initial microarray analysis using categorical clustering software revealed expression profiles of 19,200 human genes, one of the relevant genes is p62.
- PGJ2 up-regulates p62 and ubiquitinated proteins in both a dose- and time-dependent manners in terms of quantification of western blots probed with an anti-p62 antibody. The upturn profile was also confirmed via RT-PCR experiments.
- PGJ2 promotes the formation of cytoplasmic protein aggregates containing p62, ubiquitinated proteins, and UCH-L1, an enzyme essential for protein de-ubiquitination.
- Moreover, the knock down of p62 via RNA interference abolishes the aggregates implying that it is necessary for aggregate sequestration.
- The up-regulation levels were also observed in the lysate of post modem patients' brain samples.
- PGJ2 inhibits UCH-L1.
- With the UBA domain in its C-terminal, p62 has a high affinity for poly-ubiquitin chains.

Currently, I am employing a proteomic approach involving two-dimensional gel electrophoresis and mass spectrometry, to identify some polyubiquitinated proteins critical in forming aggregates.

In the future, a network model of neurodegenerative diseases will be given after these biochemical, genomic, and proteomic studies.

Working Experience

Internet Commerce Corporation, Long Island, New York
Software Engineer 02/01-08/02

Intensive Java/J2EE/C++ programming to provide enterprise applications and implement a real-time transaction and message model for exchanging and managing data, documents, electronic data interchange (EDI), graphics, audio and video clips for commercial trading partners.

CapitalEngine Investment Bank, New York City
Java Developer 08/00-02/01

- Developed components such as the manager control panel, underwriter workstations, portfolios, and session/entity beans such as rank-computing, deal/equity quotes.
- Responsible for developing Java class packages and bean modules for the primary debt/deal market, secondary debt deal market, primary equity market, secondary equity market, some other financial derivatives.
- Composed and analyzed large-scale SQL unions and relational-object mapping. Configured connection pools for shared resources such as database and application servers.

China Petroleum and Chemical Corporation , Beijing
Project Manager 11/92-07/96

Responsible for managing a list of projects, to name a few:

- S-2 catalyst (Al/Cr system) for the co-polymerization of ethylene and alpha olefin.
- Characterization of several organic catalysts and the polymer composites.

Chinese Academy of Sciences, Institute of Chemistry, Beijing,
Research Associate 05/89-10/92

- Organic and polymeric compounds synthesis, such as the synthesis of β-damascone analogs and that of bis-(1-(2-methoxyethyle)indenyl) dysprosium chloride.
- Characterization via HPLC, ^{1}H-NMR, ^{13}C-NMR

Teaching Experience

Hunter College and Queens College of CUNY,
Teaching Assistant, 1996-2000, Taught and tutored organic chemistry and computer science courses.

Publications

Wang Z, and Figueiredo-Pereira M (2005) "Inhibition of sequestosome 1/p62 up-regulation prevents aggregation of ubiquitinated proteins induced by prostaglantin J2 without reducing its neurotoxicity" Molecular and Cellular Neuroscience, *in press*.

Wang Z, Soteropoulos P and Figueiredo-Pereira M (2005) "Gene expression profiling by microarray analysis of neuronal cells treated with PGJ2", *in preparation*.